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TESTING FOR CREATIVE TRAITS OF COLLEGE STUDENTS.

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DESCRIPTORS- *CREATIVITY, *COLLEGE STUDENTS, *TESTING, *TEST CONSTRUCTION, *TEST VALIDITY, PERSONALITY ASSESSMENT, NEW HAVEN, CONNECTICUT, PERSONALITY COMPLETION TEST (PCT), DRAWING STIMULUS STRATEGY MEASURE (DSSM), SPONTANEOUS DIVERGENT ACADEMIC (SDA)2, INCOMPLETE FIGURES TEST, SELF DESCRIPTIVE EXPLORATORY RESEARCH INVENTORY

TESTS ON CREATIVE PERSONALITY WERE STUDIED AND VALIDATED. THE FIVE TESTS CONSIDERED APPROACHED THE PROBLEM OF CREATIVITY MEASUREMENT IN DIFFERING WAYS. TWO WERE CHOSEN FROM PUBLISHED LITERATURE--(1) "SELF-DESCRIPTIVE EXPLORATORY RESEARCH INVENTORY," AND (2) "INCOMPLETE FIGURES TEST." THREE WERE ADAPTED OR DEVISED BY THE INVESTIGATOR--(1) "PERSONALITY COMPLETION TEST," (2) "SPONTANEOUS, DIVERGENT, AND ACADEMIC (SDA)-2," AND (3) "DRAWING-STIMULUS STRATEGY MEASURE." THE TESTING POPULATION REPRESENTED NEARLY 200 STUDENTS IN THE STATE COLLEGES OF CONNECTICUT, ART MAJORS OR ELEMENTARY EDUCATION MAJORS WHO HAD TAKEN COURSES IN ART. THE MOST OBJECTIVE AND DISCRIMINATING INSTRUMENT FOR CREATIVE TRAITS APPEARED TO BE THE "PERSONALITY COMPLETION TEST," A VERBAL STIMULUS TEST INVOLVING SENTENCE COMPLETIONS. (JH)

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New Haven, Connecticut

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TESTING FOR CREATIVE TRAITS OF COLLEGE STUDENTS

Cooperative Research Project No. S-408

July 1965 to January 1967

Ruby Claire Ball

Southern Connecticut State College

New Haven, Connecticut

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FOREWORD

This project has involved the help of several hundred people. I shall not name them all. Yet research prompts a keen awareness of its interactive nature. In personality research, the investigator's dependence on others takes on many dimensions.

I am grateful to students in Connecticut colleges who have taken these tests. Their interest, reactions and comments have served both to reward and to prod.

I wish to thank the teachers who have helped facilitate the testing: John Wenner, of Central Connecticut State College; James Timmons, Robert Alberetti and Mrs. Elizabeth Hoefner, of Danbury State College; Louis de Luca, of Southern Connecticut State College; and Julian Akus, of Willimantic State College. Extra-contractual help has come from Southern Connecticut State College, and from many individuals there.

I should like to gratefully acknowledge the assistance of the State Department of Education of West Virginia, during the final stages of this project.

The kind of instruments involved has necessitated a search for judges with a special kind of perceptiveness. I have been fortunate in finding them: Dr. Howard Lewis, of Florida Agricultural and Mechanical College, for helping to judge the highly-subjective personality measure; and Misses Mary Brown and Kathryn Trijonis, senior art majors at Southern Connecticut College, for judgements of drawing strategy and of the elaboration-innovation complex.

The two people who take their own services for granted should be better acknowledged. I wish to recognize my research coordinator, Dr. Harlan Hoffa, for his extra mile of service and his alertness to the nuances of the problem; and my research consultant, Dr. Kenneth Beittel. Not only has Dr. Beittel provided help beyond normal expectations, but the impetus generated by his own work has channeled itself back into the field in many ways.

Last, I am indebted to my editor-typist, Miss Glenna Ball, for patience, comprehension of the incomprehensible, and midnight oil.

Ruby Claire Ball

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INTRODUCTION

The research described here has been focused toward two major objectives: 1) to learn more about personality; 2) to learn more about testing and test construction. To accomplish this it has been deemed essential that the problem resolve itself within the climate of existing research and prevailing ideology. If we have grasped, as any researcher must, only a small dimension of this climate, we have attempted to delineate it, so that we move in some comprehensible fashion from one perception to the next.

1) To learn more about personality: Using familiar and relatively-validated measures for correlation, new tests have been devised. Varying in format, in content, and in method of administering, these tests attempt to assess some of the more familiar components of the creative personality; and to test, in conjunction with these, different components.

2) To learn more about tests and test-construction: Tests have been designed to approach similar problems through diverse means. They are high in dependent-variable potential, as, for example, the rotating set of topics used for the Drawing-Stimulus Strategy Measure on page 28. The more significant early conclusions, however, have come, in retrospect, from simple comparison and correlation.

In administering the tests, the investigator has run head-on into some of the pitfalls of test construction. That these include the predicted and hypothesized is a part of the story.

DEFINITION OF CLIMATE

The problem has emerged in part from a dichotomy relating to creative art versus clinical investigation. Reduced to stereotyped terms, we see the artist as an individual whose emotional and mental faculties are so bound up with his own compulsions that he neither knows nor cares what route he follows. We see the psychologist as patiently recording the observable phenomena of the creative act as he sees it. He may differ from the artist as to what is creative. He must further overcome the limitations of the word "observable." For, like faith, truth, love, art, or any other abstraction, that which can be encompassed by language is not at all of the essence. We have sought clues from the rare artist who can talk about his art, and from the psychologist who can lose himself in the experience of it; self-contradictory, in a sense, yet we must acknowledge the existence of both as we recognize the extent to which they have come to grips with these problems. Most of our insight has doubtless come from those individuals who can assume the role of both, or who can see from where they stand.

Psychology has produced more literature about process per se than has art. It is to the credit of both fields that we have come so far in so short a space of time. We need to cement the bridges and find better channels for the transmitting of insights.

If it is the challenge of the impossible which has prompted this research, there is nevertheless a grain of practicality about it. We have gone more deeply than is customary into the personal and the subjective, to see if it will yield to testing. Our experience tends to support the theory that it will. We have made less progress in regard to the reliable recording and transference of data thus secured.

This too may count as a point in favor of investigation.

RELATED LITERATURE

The most pertinent literature falls into three categories:

1. Tests and testing
2. Descriptive, analytical and philosophical aspects of creativity
3. Statements by artists

Irving Child has said, "Esthetic sensitivity may be measured if people's responses to standardized presentation of works of art can be evaluated against a suitable criterion. The criterion must provide a means of scoring each response ..."10 Without confusing the writer's meaning, and without reading into it more than he intended, we find it a suitable parallel for the measurement of that mysterious intangible, human personality. May personality-assessment instruments, of varied or subjective nature, be validated against the criterion of established tests? The tests which the investigator has chosen as validating instruments are Beittel's and Burgart's BBCI X-3,[7] and Kate Franck's INCOMPLETE FIGURES TEST.[23]

Dale Harris focuses upon another area of the problem, with a single, definitive phrase, which we have quoted out of context because it says what we wish to say, "...not predicted behavior, but dynamics."[13] The heirarchies of traits emerging from the BBCI X-3 tends toward dynamic-behavior research. The investigator has chosen to venture into this area through the use of paired, often opposing, traits in her PERSONALITY COMPLETION TEST. (See Scoring Sheet, p.18). For her S D A 2, p. 22, Harris also has a work: "To the extent that individuals within the group have particular and unique experiences with that word, there will be aspects of "meaning" which are idiosyncratic and not shared by others.[13] The investigator has chosen to see if this hurdle can be partially overcome. We can not discount the ability of the intelligent individual to go beyond the specific to the inherent meaning of a word. Do we rule this out by the form and the timing of our tests? Does the kind of timing which favors a quick response tend to suspend judgement in favor of emotional reaction? If so, what are the implications? Indeed, the assumed presence of inherent meaning may run counter to the climate of the day. Harris goes on to say, "One does not achieve generalization; he achieves, rather, differentiation, by finer and more precise discriminations."[13]

On Creativity

Paul Torrance has devised a variety of tests, all having common criteria. Each poses a problem and each evokes a non-prescribed response.[23] His implied definition of creativity overlaps with that of Mary Henle[14] in her listing of the characteristics of creative production: Novelty, correctness (referred to by Torrance as "effectiveness"), freedom and harmony. From both we infer that the ultimate source of an individual's creativeness lies in his response to a situation. We are again confronted by a phase of dynamics. We have experimented in this study with loose and tight control of situation and stimulus.

Another of the psychological investigators, Harold Rugg, brings new clarity to the neurological patterns of creativity. He has observed the route of stimulus and response, and the origins of natural stimulus. He has traced the creative impulse, from the autonomous forming process, through the nurturing or incubation stage to the "one brilliant moment (when) there is a sudden veering of attention, a consequent grasp of new dimensions and a new idea is born."[20] We may suspect that what Rugg refers to as a flash of insight may very in substance or in detail from that which might be described by an artist.

Artists in general do not seem inclined toward this type of description. William Saroyan considers an experience as something to be felt and shared, but not to be talked about.[21] Yeats says, "Man can embody truth, but he cannot know it." Van Gogh describes his painting in terms of the great elemental urges which seem to move his hand and his mind together with his passions.[24] Shelley expresses it thus: "A man cannot say, 'I will compose poetry...for the mind in creation is as a fading coal, which some invisible influence, like an inconstant wind, awakens to transitory brightness." Herbert Read expresses the philosophical point of view, "The work of art exists as such, not in virtue of any meaning it expresses."[19] Psychologist Mary Henle says, "Creative thinkers can tell us so little about creative thinking."[14]

Brewster Ghiselin has looked at both sides of the coin. As a poet and as a research specialist, he describes the process through which one of his poems took form, from inception to the nurturing of ideas and imagery, to the final culminating impetus.[12] His essay partakes somewhat of the detachment of a Rugg and the involvement of a Van Gogh.

Purposes and Source

The researcher, of all people, must deal with antithetical approaches. If he attempts to examine creativity in terms of the described and describable, he may find that he is dealing with something other than creativity. If, on the other hand, his involvement exceeds his capacity for detached observation, the weight of his findings may be minimized. Creativity research is descriptive, informational, but it must also partake of the nature of that which it describes.

Many of the hypotheses emerging here have originated in studying the research of Kenneth Beittel and his associates at the Pennsylvania State University. The investigator has used the BBCI X-3, cited throughout this study, as a validating instrument in several previous studies. A second source is the personality measure devised by Harlan Hoffa, which deals with the complexes relating to conformity.[15] Robert Burkhart's SDT has been experimentally revised and adapted for use here.[9]

Also, the investigator's curiosity has accumulated as she assisted other researchers: As a judge for Beittel[5] in scoring studio work; and for Layman Jones[17] in making judgements relating to taped interviews. She has previously revised and used an instrument by Jesse R. Bond[2, 8] and has subsequently broken it down into six sub-scales for measuring effectiveness in student teaching.* Another test has stemmed from the Beittel-Burkhart measures of Spontaneity and Divergence, described elsewhere.

Research Attitudes

Beittel seems to be supported by Ray Hyman who expresses this attitude: "The major theme that confronts us is 'premature closure' or commitment to an early viewpoint. We are trying to find the conditions under which an individual will abandon his early approach to a problem in the face of new information..."[16] This empirical point of view may or may not have qualities in common with the value-oriented studies of Pitirim Sorokin, "Creativity...add(s) something new and constructive to the highest values of Truth, Goodness, Beauty;"[22] or of Viktor-Lowenfeld, "Creative teaching per se is no virtue unless it is carried by the deep desire to promote human values;"[18] of John Walmer, "The creative person takes the responsibility for his actions. He is organized,

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* Insight, Competence, Communicative Skills, Resourcefulness, Flexibility, Desirable Personal Attributes.

efficient, uses time well..."[25] and the view of Frank Barron that in psychological good health there is a sort of moral fitness which does not necessarily correspond to common concepts of morality.[3]

This consideration of morality in research is not without purpose. Whether its nature is unique to this field, or whether it resides in stable philosophical concepts, or whether in suspended judgement, we look to social value as the criterion of its ultimate usefulness. There is some attempt in this study to touch upon the moral values of the subject, since these are built into his personality structure. To move ahead of the story, we have detected evidence favoring the presence of well-defined tendencies toward selectiveness in both the high scorer and the low scorer.

Method and Design

If the investigator has chosen to list the difficulties rather than the conditions lending favorable prognosis to her task, it represents a point of view. It seems well to acknowledge the presence of such hazards. There is a certain incentive about them. Gaier and White cite the lack of criteria which are acceptable even to like-minded people. The charge is made that "...too little concern for psychological factors in answering questions has led to a merely intuitive basis of analysis and a questionable labelling of factors."[11] What is the kinship between intuition and reliable labelling of factors, and may we, by assiduous effort, help define the path between them?

On the favorable side is the fact that there <u>are</u> validating instruments; that there is a body of research by which to measure the potential value and compare the direction of one's own efforts. The validating measures are listed here. We acknowledge our ultimate dependence upon the body of existing research.

METHOD

The five tests listed on the following page were designed to approach the problem of measurement in widely-differing ways. Two were chosen from published literature. Three were adapted or devised by the investigator. The rationale supporting their use and the procedures will be described in greater detail.

The testing population represents nearly two hundred students in the state colleges of Connecticut. Of these, approximately fifty are junior and senior art majors. The others are, for the most part, junior majors in elementary education, who have had two courses in art.

Battery of Tests Administered

1. BECI-X3, Self-Descriptive Explanatory Research Inventory
   Kenneth R. Beittel and Herbert J. Burgart
   National Science Foundation Grant, GL-17984, February 1962

   A validating instrument for the new personality measures below.

2. Incomplete Figures Test, by Kate Franck
   Torrance, Paul, Guiding Creative Talent, p. 214.
   Prentice-Hall, 1963.

   Scored primarily on Torrance's scales for originality, elaboration and penetration.

3. Personality Completion Test, by Ruby C. Ball

   Scoring sheet also devised by the investigator, follows. This is subject to correlation with each of the other measures.

4. S D A -2, by Ruby C. Ball, based on an earlier version by Robert C. Burkhart, Pennsylvania State University.

   The hypothesis to be tested is inherent in no. 5, below, i.e., that drawing strategy is a manifestation of personality and may thus be detected through verbal measures.

   This is perhaps the most elusive of all the hypotheses tested. For progress in validity, the test will depend upon watchful analysis and revision.

5. D S S M (Drawing-Stimulus Strategy Measure) by Ruby C. Ball

   Throughout this battery, the attempt has been made to devise new tests for traits in which the evidence presupposes a high degree of creativity. An additional attempt has been made to introduce a few new measures into each test, for purposes of further analysis.

   The primary purpose of the D S S M is to detect degrees of spontaneity and divergence, as defined by Beittel and Burkhart in their experiments over a two-year period, and under present study by Beittel, Pennsylvania State University.

   Additional variables may emerge in the form of tendencies toward concreteness, abstraction or symbolism; fluency, effect of unexpected stimulus or change of stimulus.

BBCI X-3

Self-Descriptive Exploratory Research Inventory

This was chosen because of its demonstrated validity in previous research projects. It measures traits which have been of primary concern to this investigation.

A factor relating to test construction is that it is a multiple-choice test, lending itself to machine scoring. Thus it was paired with the investigator's highly subjective instrument, the Personality Completion Test.

With the permission of the authors of the BBCI, the scoring was reduced to nine items having high validity ratings and contributing to the purposes of this study. The nine, with their mean scores and standard deviations, appears on Page 10.

Hypothesis

Scales on Independence on the two instruments should show some comparable pattern, despite the contrasting approaches, and taking into account the relative number of items on which the subject could accumulate a score. This should be true, similarly, of the two scales Complexity Theory-abstraction on the PCT should compare to a degree with Theory on the BBCI; and with Word Pairs on the BBCI, which measures the tendency toward verbal abstraction. The two instruments each have a Flexibility scale. The PCT pair measuring Involvement with People versus Involvement with Ideas or Task might compare, to a degree, with the BBCI measure of Interest-Motivation. The former is perhaps a less academic measure.

Results

Mean scores and standard deviations on the BBCI fall well within the norms as compared with other colleges. This takes into account the distribution of art students in the testing population. Heretofore art majors have tested consistently higher than non-art majors. This is true here, where the testing population is made up of twenty-five per cent art majors and seventy-five per cent education majors who are taking their second course in art.

For further results, see the account of the PCT.

BBCI X-3

MEAN SCORES AS COMPARED WITH OTHER COLLEGE POPULATIONS

	PSU Ed. N - 123	ECC Ed. N - 13	SCSC Ed. N - 46	U7S Gen. N - 20	ECC Art N - 10	SCSC Art N - 22	4 Conn. Colleges N - 185 Mean	S.D.
1. Total Weighted	70.98	65.00	64.34	87.20	87.10	84.72		
2. Word Pairs	13.28	13.50	13.20	16.80	15.90	19.40	14.85	5.80
3. Confidence	5.09	5.39	4.67	6.70	7.90	6.50		
4. Interest-motivation	4.89	5.00	4.21	4.95	6.00	5.77	4.99	1.62
5. Action-process	3.81	3.00	3.00	4.30	4.50	4.31		
6. Humor	2.32	2.30	1.74	2.55	2.60	2.77		
7. Complexity	3.11	2.60	2.10	3.55	4.50	4.36	2.67	2.44
8. Aestheticism	3.62	3.54	3.40	4.30	5.10	4.68		
9. Theory	3.15	2.85	2.44	3.65	4.20	3.80	3.28	1.39
10. Non-authoritarianism	2.10	1.77	2.06	2.90	2.40	3.59		
11. Originality	4.50	4.15	4.41	6.20	7.50	6.00	4.62	3.06
12. General Sensitivity	2.35	3.00	3.20	4.05	4.10	5.00	3.96	1.04
13. Flexibility	3.19	2.00	2.95	4.00	3.50	4.10	3.38	1.80
14. Interest	5.21	5.40	4.95	5.90	7.10	6.30		
15. Independence	4.44	4.00	4.40	6.20	4.50	6.40	5.29	2.22
16. Action	6.07	6.50	5.70	6.70	5.80	6.73		
17. Abstraction from Perception	4.20	4.15	4.00	4.85	5.50	4.80		
18. Inclusion of Opposite	2.85	2.60	2.17	2.90	2.80	2.72		
19. Confidence-risk	4.68	4.00	3.32	5.75	6.20	6.36	4.65	1.16
20. Fluency	1.51	1.46	1.06	1.45	2.50	1.50		
21. Tension	1.75	1.77	1.54	1.40	2.00	1.59		
22. Supportive Environment	2.22	2.77	1.89	2.30	2.40	2.09		
23. Skill	1.77	1.77	1.65	2.00	2.30	2.05		

PSU Pennsylvania State University
ECC East Carolina College
SCSC Southern Connecticut State College
U7S University of the Seven Seas
4 Connecticut Colleges: Central, Danbury, Southern, Willimantic.

INCOMPLETE FIGURES TEST

This is a drawing-stimulus test, of demonstrated validity, as reported by Torrance[23] and many others. It has had high predictive value in the investigator's previous studies.

In this instance, each subject was given a paper on which appeared portions of geometric figures, each in a separate frame. The subject was asked to complete the drawing in any way he wished. He was told merely that this is a test for imagination, and would be scored for novelty and elaboration of ideas. Testing time was limited to thirty minutes.

Scoring

A variation of Paul Torrance's scoring system was used. Judges assigned scores ranging from one to four for each of two criteria:

I. Elaboration-complexity. It was felt that this lends itself to scoring with some validity. It was also felt that it includes the basic elements of Torrance's closure-penetration scale.

II. Novelty-originality. Unusual subject matter or design was scored high.

Judges

One college teacher and two senior art majors, scoring subjectively.

Results

Scores represented almost total unanimity of agreement, the only evidence of such in the entire project. Of 366 judgements involving 183 subjects, only three judgements varied more than one point. None varied as much as three points.

Within a possible range of four to sixteen, the mean score appeared as 9.78, with a standard deviation of 3.78.

This is evidence in favor of the belief that this test lends itself to reliable subjective scoring. It's correlative aspects will be discussed in the summary.

PERSONALITY COMPLETION TEST

This is a verbal-stimulus test of fifty items, devised by the investigator. It appears both in origin and in retrospect as the most promising of the new tests, and at the same time the most subject to the dangers of a non-scientific approach. Since it appears high in insight-potential, it has become the major focus of this project. Its faults and its virtues will bear further study.

The test is reproduced on the following pages, along with the scoring sheet devised by the investigator.

Rationale for construction

As stated in the objectives of the research proposal, the intent has been to measure similar traits, using varying approaches. The sentence-completion measure was conceived as being in extreme contrast to the multiple-choice BBCI X-3. Some of the same traits were scored. In other instances, new traits were added to the scoring sheet to provide the basis for further insight into the components of personality. Still other categories were paired to show either relationship or contrast. Thus not all of the traits measured were conceived as being related to the creative personality, and did not accumulate to a total creative score.

Definition of traits measured, and Retrospective Analysis

Insight: Self-defining. The trait appears to be almost totally lacking in the average answer. It often runs high in the thoughtful answer, and bears a corresponding relationship to theory-abstraction.

Impulsivity: Self-defining. It has been interpreted here to include warmth, or immediacy of response to the needs of others. It thus forms a partial hierarchy with Involvement with People.

Objectivity-detachment: This in some instances has appeared in inverse relationship to Impulsitivity; in others, the same individual has scored on both.

Complexity: The presence of two or several traits, especially if they are opposites. Tolerance for conflicting ideas.

Theory-abstraction: Self-defining. Measured also is the inclination to intellectualize the responses.

Concreteness: This has generally been measured in terms of materialistic or factual responses, in contrast to ideas.

Independence: The most obvious indication has been interpreted as a reliance upon one's own judgement. Rebellion *per se*, divorced from any evidence of judgement also receives a score, although a low one, for independence. Low or negative scores accumulated in instances indicating over-compliance, over-reliance on others, fear of confusion or of taking chances. (It does not, however, apply to the individual who tends to assess objectively; the odds involved in taking risks.)

Perhaps surprisingly, some individuals who accumulated a high score for independence also accumulated a number of negative points, indicating weakness. The assumption may be that, due to the open-ended nature of the test, a greater variety of human experience is involved.

Involvement with People: No attempt was made to discriminate between dependent and independent relationship with others. The former appeared more frequently. The trait will lend itself to further study, with the hypothesis that the high-scoring subject will show a correspondingly deep and positive concern for the welfare of others. A further hypothesis is that, when the two components are separated, that the type of involvement defined as positive or independent will tend to merge with the next trait measured, Involvement with Ideas and Task.

A conclusion, substantiated to some degree, is that the same individual manifests both kinds of interrelationships, depending upon the area of experience covered.

Involvement with Ideas and Task: This has been paired with Involvement with People, above. It relates to general intensity of goals, but is necessarily not confined to academic or theoretical goals. Perhaps drive is a more definitive term. In retrospect, this has appeared higher in the art major, in the superior student (in instances in which the superior student was identified) and in the individuals scoring high on Theory-abstraction.

Humor: Here the investigator concedes a measure of defeat. It appears that positive indication of the trait may appear in the form of a light-hearted approach. The lack of such, however, would not necessarily indicate a humorless individual. A test taken seriously, within the limits of available time, would not necessarily evoke the quality.

A few stimuli related specifically to humor and these may be assessed with some degree of accuracy.

The investigator may be subject to the charge of bias in applying a restricted definition to the term. There was an attempt to separate ridicule from humor, scoring only for the latter.

In summary, individuals accumulating a high score on humor have doubtless earned it. The measure appears inconclusive as regards low-scorers.

Selectiveness: This term applied to any limitation remarked by the subject, often relating to quality; or standards; e.g., admiration of a particular type of person, or an exclusively-defined goal.

Flexibility-tolerance: Self-defining. There was some indication of inverse relationship to Selectiveness. The hypothesis offered is that a third conditioning factor would be encountered in the degree of involvement or detachment applying in a particular instance.

Novelty-originality: Shown in the unexpected answer, especially if thought-provoking. The term is largely self-defining.

PERSONALITY-COMPLETION TEST

Name _____

DIRECTIONS:

Complete each sentence. There is no prescribed form for the answer and no single type of answer is expected. Do not spend too much time, but try to give a reasonably complete answer and one which is characteristic of you.

1. My favorite recreation

2. One of the greatest books

3. I want very much the approval of

4. The happiest people

5. When I am unable to convince others

6. Communism is

7. I am reverent toward

8. My sympathies are aroused by

9. A good rule of conduct

10. My childhood

11. I can laugh at myself

12. Children

13. Obscure poetry

14. Off-color jokes

15. I owe my parents

_____

16. One quality of a good teacher

_____

17. When I take chances

_____

18. I am against

_____

19. My goals

_____

20. My respect for authority

_____

21. Instinctively, I

_____

22. The people I admire most

_____

23. I sometimes solve personal problems by

_____

24. What surprises me

_____

25. The thing I do best

_____

26. Explicit directions in a teaching assignment

_____

27. A funny thing

_____

28. Rules and regulations

_____

29. In relation to others in my class

_____

30. If someone tells me what I know to be incorrect

_____

31. I do my best creative work

_____

32. I am amused by

_____

33. I get angry

_____

34. The best help for unhappiness

35. When a friend asks me to help him

36. When I do not understand a painting

37. I question

38. Careful planning

39. I am inclined to give material help when

40. Confusion

41. Many of my best ideas

42. My opinions in general are influenced by

43. My intuition

44. Insecurity

45. The classics

46. One thing I always have time for

47. I am bored by

48. When I am alone

49. Details

50. The people I enjoy most

Scoring Sheet, PERSONALITY COMPLETION TEST

(Scoring Range from minus 1 to 3)

Number	Insight	Impulsivity	Objectivity-detachment	Complexity	Theory-abstraction	Concreteness	Independence	Involvement with people	Involvement with ideas and task	Humor	Selectiveness	Flexibility-tolerance	Novelty-originality	

PCT SUMMARY

The problems with which one must come to grips before this can become a scientific instrument are almost insurmountable. Before detailing them, the investigator hastens to add that of all possible approaches, this represents one of the most conducive to personal insight. It could well supply a basis for the selection of students for one role or another.

Time Involvement For Subjects:

The one-hour average time required to complete the form was ample for many students, insufficient for some. Among those finishing quickly is almost the entire group whose responses were characterized by brevity or triteness. On the positive side, non-triteness appeared, when at all, as an identifiable attribute.

Time Involved For Judging:

The PCT is not economical to score. Subjective scoring, with thoughtful appraisal of each paper requires sufficient time to prohibit its widespread use. Its potential seems good for careful screening of subjects, or of applicants for a college or position.

Judge-Agreement:

The scores recorded by two judges did not agree. This is accounted for, in part, by the perception of one of the judges, who simply alloted a more generous rating than did the other. A comparable pattern of high-low scores appeared on most of the measures. Exceptions to this are Theory-abstraction, in which Judge no. 1 recorded lower scores; and Flexibility-tolerance, in which his scores were considerably higher. Any differences may be charged to personal temperament, since the two individuals are of comparable experience and educational background.

Summary

In summary, the PCT attempts to reach into the non-academic world of the student, and provide stimuli in all areas of experience. It further, by definition and intention, seeks to delve into new hierarchies of traits; and to assess the components of personality in new combinations with each other. In this direction, the investigator feels that the study has begun to move.

The report on this instrument would not be complete without some of the observations about the superior or unusual student.

Student No. 72 is the highest-ranking student in her class. She has a three-year college grade record of almost 4.0. Her most significant scores are very high on Theory-abstraction, with a correspondingly high score on the BBCI Word Pairs. Her other creative scores are high but not excessive on all measures. The only exception to this is Selectiveness, in which instance a re-reading of her paper indicates an involvement with quality of goals. She scores well on Flexibility.

Student No. 54 is regarded by many of her teachers as being the most vibrant, personality-wise. She also has top grades in most of her courses, but a few in creative arts are merely average. She responded to the PCT with a total outpouring of ideology; fluent, complex, logical, and personal. She made high scores on all of the measures defined as creative. On those included in the PCT, her scores were not only higher but several times higher than each of the norms.

Student No. 56 was currently undergoing a traumatic experience, followed by depression and a period of hospitalization. Her creative scores were well above average in all cases. She scored extremely high on theory in the BBCI as well as the PCT. Her Independence score, however, appeared as high in the former, low in the latter. The assumption may be that the two instruments measure different components of independence; a second and less likely theory would seem to be that the timing of the two tests reflect some sensitivity to a shift in personal outlook.

The investigator is reluctant to subscribe too loosely to the theory that excessive use of black denotes a personal disorientation. On the Incomplete Figures Test, however, student No. 54 was the only one of nearly two hundred to apply color (score for novelty). The color included a liberal amount of black ink.

PERSONALITY COMPLETION TEST

Mean Scores and Standard Deviations
Four Connecticut State Colleges
N - 180

		Mean Score	Standard Deviation
1.	Insight	4.50	5.32
2.	Impulsivity	7.18	4.16
3.	Objectivity-detachment	9.79	8.25
4.	Complexity	5.03	8.22
5.	Theory-abstraction	13.53	9.15
6.	Concreteness	2.59	4.56
7.	Independence	8.22	6.32
8.	Involvement with People	12.84	7.09
9.	Involvement with Task	8.59	7.82
10.	Humor	3.96	3.71
11.	Selectiveness	6.13	5.03
12.	Flexibility-tolerance	3.33	3.56
13.	Novelty-originality	3.93	7.51

SDA - 2

This is the investigator's adaptation of a word-choice test devised by Robert Burkhart[9] for the definition of three personality types; Spontaneous, Divergent and Academic. It was intended to correlate with the D S S M, a drawing-stimulus test with a similar objective.

Researchers of these strategies, defined by Beittel and Burkhart and later elaborated upon by Beittel, have been confronted with the problems of confining intangibles to verbal definition. Perhaps those sensing the dichotomy most keenly are the authors themselves. It has been this investigator's hypothesis that a word-choice test can provide substantial insight, provided it is made sensitive enough. So far this has not occurred. It is to be reported here that the investigator's own adaptation of the SDA has provided the least reliable data of the five measures employed. Clues relating to the validity of the testing procedure have accrued, nevertheless.

Construction of the SDA - 2

The original test by Burkhart instructed the subject to select one of three words on the basis of subjective preference. The investigator revised the list of words and asked that selection be made on the basis of the subject's quick but thoughtful appraisal of himself.

The introduction of conscious and deliberate choice brought about other changes. It was felt that the subject would respond, to some degree, in terms of his self-concept; hence it was necessary to choose words with which the subject could willingly identify. In two instances when unflattering words were used, the attempt was made to match the three choices in terms of relative desirability.

As has been true with other measures in this research, the effort was made to reach beyond the subject's academic life and to probe into his total outlook and life-orientation. Hence some words were introduced which are free of academic connotations.

The "uncreative" one of the three categories, i.e., Academic, was indicated by words relating to an externally-conditioned outlook; i.e., excluding independent thinking, novelty, experimentation and abstraction, but high in society's connotations of the stable individual.

Results

Scores were carefully recorded, but are sufficiently undiscriminating that it would serve no purpose to report them here. It should be reported, however, that senior art majors, the group tending to score highest on all creative measures, tended to score significantly low on Academic, the non-creative dimension. Subject No. 54, for example, who accumulated an astonishingly high score on the PCT, scored only 5 on Academic, 25 on Divergent and 20 on Spontaneous. This is in keeping with her PCT score also in that she displays a high degree of detachment, and a quality of intensity which appears as both controlled and ordered.

Recommendations

The attempt should not be given up.

Directions:

From each set of three adjectives, choose the one which, in your opinion, most accurately applies to yourself. Blacken in the space on the scoring sheet which corresponds to the number and the column of your choice.

1.	Orderly	Complex	Passionate
2.	Idealistic	Obliging	Experimental
3.	Accurate	Daring	Reasoning
4.	Emotional	Thoughtful	Sophisticated
5.	Accomplished	Ingenious	Uninhibited
6.	Individual	Avant-garde	Traditional
7.	Tasteful	Flexible	Self-determined
8.	Determined	Discriminating	Steady
9.	Strong-minded	Open-minded	High-minded
10.	Tolerant	Courteous	Generous
11.	Reliable	Purposeful	Committed
12.	Poetic	Improvising	Harmonious
13.	Deep	Humorous	Effective
14.	Intense	Civilized	Detached
15.	Moody	Curious	Fastidious
16.	Observant	Competent	Involved
17.	Rebellious	Congruent	Mannerly
18.	Mercurial	Subtle	Assisting
19.	Undefined	Exploratory	Precise
20.	Crafty	Possessive	Faulty
21.	Warm	Adaptable	Compliant

22.	Moderate	Judicious	Dynamic
23.	Wholesome	Individual	Independent
24.	Astute	Audacious	Masterly
25.	Heedless	Bold	Careful
26.	Inventive	Impulsive	Dignified
27.	Objective	Subjective	Consistent
28.	Disruptive	Disjointed	Static
29.	Spirited	Questioning	Obedient
30.	Sensory	Unique	Fashionable
31.	Ambitious	Impractical	Pioneering
32.	Profound	Open-minded	Moral
33.	Systematic	Philosophical	Logical
34.	Intuitive	Rational	Knowledgeable
35.	Thinking	Feeling	Learning
36.	Transitory	Altering	Systematic
37.	Organized	Analytic	Changeable
38.	Descriptive	Analytical	Responsive
39.	Perceptive	Conceptual	Practical
40.	Down-to-earth	Theoretical	Visionary
41.	Erratic	Affected	Mundane
42.	Insightful	Stable	Challenging
43.	Literary	Scientific	Factual
44.	Neat	Pervasive	Discrete
45.	Compulsive	Improvisive	Perfectionist
46.	Prophetic	Motivated	Observing
47.	Responsive	Teachable	Divergent
48.	Intangible	Elusery	Concrete
49.	Other-worldly	Stimulating	Reliable
50.	Mental	Emotional	Manual

D S S M

Drawing-Stimulus Strategy Measure

This was designed as a multi-purpose instrument. Because of time limitations, it has been subjected to analysis mainly on such portion of its factors as relate to Beittel's observations of drawings as indicators of Spontaneous, and Divergent Strategy.

Each subject was represented by four drawings, done in eight-minute periods on assigned topics. To maintain the surprise element, topics were rotated with succeeding groups, but the same categories were maintained throughout; i.e., a concrete or symbolic stimulus, such as the letter S or a triangle, followed by a stimulus involving interpretation, such as a radiant light, or indigestion. The third represented abstract thought: "Couldn't care less," or "The shape of time." The fourth represented a return to a concrete stimulus, this time involving image, such as "bark of a tree," or "propeller."

The drawings were scanned for differences relating to the nature of the stimulus. Finding none of significance to style, two drawings were selected at random from each student. Three judges made independent judgements of the first group, classifying them into five degrees of spontaneity. Since the traits are not always opposites, the same judgements were then made for divergence. The procedure was repeated with the second set of drawings, as a check in judgement.

The results yielded almost total agreement at the high and low extremes of each scale, on drawings by art majors or gifted students. The middle ranges tended to become blurred with regard to the drawings of non-majors. A conclusion might be that identifiable style does not appear in the amateur drawing. The more experienced of the three judges reported incipient tendencies toward one style or another. This is unverified, however.

Conclusion

The conclusion is strongly advanced here that style in drawing may, with considerable justification, be interpreted in terms of divergent or spontaneous tendencies; that, given a background of art training, the judge is quickly oriented to perceive these manifestations. This belief is strongly supported in this case.

Further Observations

It was noted that students falling into the spontaneous classification tended to produce richer drawings, but representing less variety in both subject and method.

D S S M

Drawing-Stimulus Strategy Measure

Materials: A supply of white drawing paper, approximately 8" x 8". Soft lead drawing pencils.

Instructions: (to students)

This is an experiment to determine some of the characteristics of your personal style in drawing. Do not feel that you must submit a perfect piece of work; in fact, the time is too short for that. Work in your natural manner, taking as much liberty as you like in layout, size, arrangement, elaboration, etc.

The task consists of four drawings, each being done in an eight-minute period. You will be given, orally, a stimulus word or phrase. Begin drawing immediately, but not hurriedly. Work in any manner you wish. Treat the stimulus as you wish, abstractly, symbolically, as a dominant element, or even losing it completely in the completed piece of work. The instructor will tell you when six minutes has passed, and again at the end of eight minutes.

Notes about construction and administration of D S S N:

The oral stimulus has been chosen for its quality of unexpectedness, which may provide significant factors for judging. In order to preserve this quality, it may be necessary to vary or rotate the stimuli from one group of students to another. It makes little difference which stimulus is selected from a column, but the order should remain constant, that is column 1, 2, 3, 4.

1. Concrete Symbol	2. Subject to Varied Interpretation	3. Abstract Thought	4. Concrete Symbol
The figure 9	Springboard	Couldn't care less	Beak of bird
Two parallel lines	Vertical	Intuition	Bark of Tree
A triangle	A radiant light	The shape of time	Pillow
X	Indigestion	Honorable	Propeller

SUMMARY

At the outset of this report, we cited a dichotomy:

Creative production (personified by the artist) versus the clinical observation of creative production, personified by the psychologist or research specialist. It should be further noted that the stereotype serves for initial discrimination of issues. Beyond that, it goes the way of all stereotypes.

At the conclusion of the report, the second dichotomy appears in clearer perspective: the devising of instruments conducive to insight; and the consequent problems of validating the more nebulous of the insight-producing factors. Must such factors be screened from the testing procedure lest they confuse the data? We believe not. This presupposes the next question as to what progress is being made.

The INCOMPLETE FIGURES TEST is used here as an instrument of demonstrated validity, even though subjectively-scored. Reliability may have been increased by the small number of variables, and the control implicit in the construction of the measure.

The BBCI X-3 is used as the prime correlating instrument, because of its status in the field, and because of the investigator's previous experience with it. Here we may deduce reliability-producing factors in the complicated system by which the subject selects his answer, thus ensuring his attention to the task; and by the limitation implied in a multiple-choice answer.

How do the three instruments devised by the investigator proceed toward increased potential? Here are some of the deductions:

PERSONALITY COMPLETION TEST: There seems little doubt that the subject who concentrates his whole attention upon completing the PCT is revealing more of himself than if he were devoting such attention to an objective measure. He also reveals himself in a broader area of life-involvement which tends to break through the barriers of the academic climate. The open-ended construction of the measure finds its parallel in the teaching of university professors whose aim is to promote thinking free of prescriptive influences.

What progress is being made toward accuracy of assessment? This appears in considerable measure:

As predicted, Involvement with People appears in inverse relationship to Involvement with Ideas or Task. Those scoring high on the latter tended to score high also on both measures of the INCOMPLETE FIGURES TEST; on Theory-Abstraction and Complexity in the PCT; and on Independence and Theory in the BBCI X-3. Further factoring beyond the limits of this grant may yield more reliable evidence, as we determine the number of items on the PCT with a potential for yielding scores on each of the measures.

The reliability of other scales of the PCT is estimated as follows: Flexibility, inconclusive but promising; Humor, probably reliable when a score appears, but meaningless in the case of low-scorers; Insight, doubtless tending toward reliability, but dependent upon the availability of correlating instruments; Selectiveness, promises some reliability, with relationship to other qualities yet to be established; Flexibility-tolerance, promising; Novelty-originality, very promising; Concreteness, reliable, but perhaps inconsequential. This leaves the paired scales representing Impulsivity and Objectivity-detachment without a correlating instrument. As has been the hope of the investigator they may provide further insight into the personality of the superior student. The presence of both in the same individual seems to occur more frequently among high-scorers.

DIVERGENT-SPONTANEOUS STRATEGY MEASURE: This has apparently served its primary purpose of revealing drawing-strategy. Discriminations become blurred, when at all, among the drawings of the non-art major, whose work may fall more nearly into an academic category. Its indications relating to the effects of varied stimuli are more conclusive in the case of the Divergent strategy, in which the subject's drawing appears to reflect a response to verbal topic. This is subject to further confirmation.

SDA - 2: For purposes of this study, the possibilities of this instrument are more nearly exhausted than is the case with the other two. It lends itself to quick, short-term experimentation, however; and its validating instruments, the judgements of drawings, are relatively stable. Furthermore, despite a climate favoring the non-verbal, there is much to be learned about man's revelation of himself via verbal stimuli.

RECOMMENDATIONS

Continue work on all three. The PERSONALITY COMPLETION TEST is recommended for formal support.

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No 1

TRIANGLE

(SSM) Drawings by Mrs. Barbara Dress, Southern Connecticut State College

No. 3

COULDN'T CARE LESS